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APRIL 8, 1950

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SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE

It's Spring Again!

See Page 214

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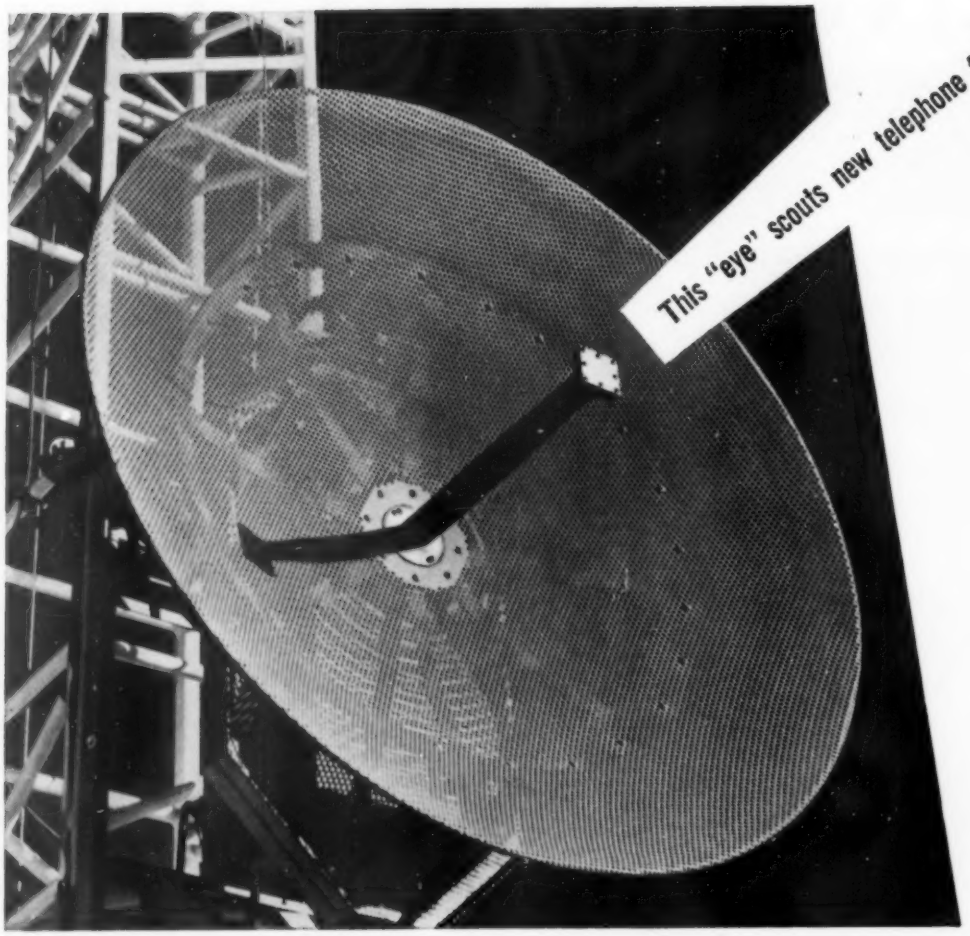

Throughout history, scouting parties have gone out ahead of man, ahead of settlements, ahead of civilization itself. Today, Bell System scouts are engaged in a new kind of exploration — charting a path for microwaves — using equipment specially designed by Bell Telephone Laboratories.

The portable tower shown is constructed of light sections of aluminum and in a few hours may be built up to 200 feet. Gliding on rollers, the "dish," with its microwave transmitter or receiver, is quickly positioned for line-of-sight transmission, then oriented through electric motors controlled from the ground.

Test signals show how terrain and local climate can interfere with microwave transmission. Step by step, Bell's explorers avoid the obstacles and find the best course for radio relay systems which will carry television pictures or hundreds of simultaneous telephone conversations.

A radio relay link similar to the one between New York and Boston will be opened this year between New York and Chicago. Later it will be extended, perhaps into a nation-wide network — another example of the way Bell Laboratories scientists help make the world's best telephone system better each year, and at lowest cost.

BELL TELEPHONE LABORATORIES

EXPLORING AND INVENTING, DEVISING AND PERFECTING, FOR CONTINUED IMPROVEMENTS AND ECONOMIES IN TELEPHONE SERVICE

MEDICINE

Aureomycin Treats Heart

Striking results have been achieved in treating an inflammatory heart condition with aureomycin. The condition is believed to be due to a virus infection.

➤ "STRIKING results" with aureomycin treatment of an inflammatory heart condition are reported by Drs. M. Taubenhaus and William A. Brams of Michael Reese Hospital, Chicago, in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (April 1).

The heart condition is known medically as acute nonspecific pericarditis. It is an inflammation of the membranous sac around the heart and is believed due to a virus infection, though this is not positively known.

Sudden fever, sick feeling and pain below the breast bone or around the heart are symptoms. A "friction rub" can be heard with each heart beat when the doctor listens through his stethoscope.

Striking improvement, with drop in temperature and lessening of pain, took place the second day of treatment with the yellow mold drug, aureomycin. One patient was well within a few days, another was back at full work in two weeks and the third had a relapse after leaving the hospital but got well again after a second course of aureomycin treatment.

While final conclusions cannot be drawn from three cases, Drs. Taubenhaus and Brams think their experience suggests further trial of aureomycin in this heart condition.

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AGRICULTURE

Diet Effect on Twin Calves

➤ FROM now on, any cow may become a VIP (very important person) in government circles. All she has to do is have identical twin calves.

If she is within 300 miles of Washington, Department of Agriculture scientists will come knocking at her stall, checkbook in hand, wanting to buy her babies.

The Bureau of Animal Industry has begun a far-reaching research program on the effects of limited food intake on beef cattle. For the experiments, the Bureau's nutrition specialists have begun building a herd of identical twin cows. They hope eventually to secure 24 sets of the relatively rare calves (one set in more than 2,000 births).

Heading the project at the big U. S. Agricultural Research Center in Beltsville, Md., is Dr. Clarence F. Winchester.

If it is found that beef cattle can go on short rations for a few months and catch up in poundage later, he explained, "U. S. cattlemen could save a lot of money in times when feed is scarce and exorbitantly priced."

One set of identical twin calves, Dr. Winchester said, can give as accurate data for such experiments as 40 cows that are merely of the same breed and general type. A herd of a dozen twins can do the work of 240 ordinary animals, because scientists can eliminate the factor of different hereditary characteristics when working with exact twins.

One twin will be fed as much as it can eat. The other will be allowed less feed. Differences in growth over various lengths of time will be noted.

Obtaining a set of identical calf twins is not as easy as it sounds. Careful scientific tests are required to make sure of "identity" —that the twins developed from division of a single egg and not from two eggs developed together.

Agriculture Department specialists even take nose prints, like fingerprints, to make sure. Other tests include checking hair patterns, coloring details and blood samples.

To limit travel distances, the government is buying twins only in areas up to 300 miles from Washington. It wants beef calves, but will take dairy calves if sired by a beef bull. The twins do not have to be pure-bred.

Dr. Joseph C. Shaw, professor of animal husbandry at the University of Maryland, is looking for twin dairy calves for nutritional studies. The University used to have a herd of twins, but no more. They were used for slaughter experiments, Dr. Shaw said.

And at the University of Missouri, Dr. Winchester said, Prof. G. E. Dickerson is in the market for female identical calf twins for genetics experiments.

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AERONAUTICS-ENGINEERING

Oil Shale Yields Jet Fuel

➤ BILLIONS of barrels of jet engine fuel, for a possible wartime emergency, can be extracted from the oil shales of Colorado, Dr. J. D. Lankford of the U. S. Bureau of Mines stated.

He estimated that 88% of the crude shale oil could be converted into a hydrogenated product containing a premium diesel oil and a high-quality jet fuel practically free of sulfur, oxygen and nitrogen compounds. Costs of such extractions have not yet been definitely determined, Dr. Lankford told the American Chemical Society meeting in Houston.

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WHICH ONE WILL HAVE THE FOOD?—One of these identical twin Angus calves will be mighty jealous of the other for one will be fed all it can eat while the other will go on short rations. Extremely rare, the twins are shown with Dr. Clarence F. Winchester, animal husbandry specialist who is directing the research project.

MEDICINE

Vitamin Hinders Cancer

➤ CANCER growth can be slowed by a synthetic vitamin K called Synkavit, Dr. C. M. Pomerat of the University of Texas Medical Branch, Galveston, has found.

When the synthetic vitamin was given with X-ray treatment, an 80% slowdown of growth of the cancer was achieved. The treatment was tried on "several patients."

The cancer's growth, however, is not completely stopped and the treatment is not a cure, Dr. Pomerat emphasizes.

Doses of the drug that would be big enough to cure the cancer would be strong enough to kill the patient.

The dose actually used was smaller. Its safety had been determined by prior tests on normal tissue taken from the bodies of patients with advanced cancer. These tests showed the normal tissue was not damaged by that dosage of the synthetic vitamin. British scientists had previously reported that at a safe dosage the synthetic vitamin slowed down tumor cell division 30%.

Dr. Pomerat's techniques for keeping cells alive outside the body are being used for studies of the temperature and radiation effects of atom bomb explosions.

Large sheets of skin kept alive and in storage for grafting on victims of fires and other disasters is a possible future development from these techniques.

Dr. Pomerat's work is supported by the American Cancer Society which announced the results to date.

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ASTRONOMY

Vegetable Life on Mars?

➤ "SOME form of vegetable life exists on Mars—that is quite probable," Dr. E. C. Slipher of Lowell Observatory stated.

"Vegetable life is the only suggestion yet made that accounts for the changes that are observed on the planet. I think the evidence supporting this theory is growing stronger and stronger," Dr. Slipher stated.

To find more evidence for some primitive form of life on Mars, astronomers are now training their telescopes on the ruddy planet.

Mars recently made its closest approach to the earth since 1943. On March 27 it swung to within 60,360,000 miles of the earth. Not until 1952 will it again be so close.

Early in the evening Mars can been seen low in the east in the constellation Virgo, the virgin. Its brightness, brighter than that of any star, and its red color make it easy to locate.

The closest equal on Mars to the kind of life we know here would be the mosses and lichens such as cling to towering, frigid mountain peaks. Astronomers definitely rule out the possibility of animal, human or even a weird monster-type life on the planet.

Since the axis of the earth and the axis of Mars are tipped to about the same degree, seasons on the planet are similar to those we know here, except that the temperatures are much lower. Mars is having a normal spring, Dr. Slipher stated.

Dr. Slipher is making his observations at the Lowell Observatory through the 24-inch refracting telescope.

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Question Box

AGRICULTURE

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ASTRONOMY

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CONSERVATION

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GENERAL SCIENCE

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MEDICINE

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WILDLIFE

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Photographs: p. 211, Bureau of Animal Industry, U. S. Department of Agriculture; p. 213, Buffalo Museum of Science; p. 214, Archaeologisches Institut, Dr. H. Vetters; p. 215, Lederle Laboratories; p. 219, Arthur D. Little, Inc.; p. 224, Harry W. Smith, Inc.

● RADIO

Saturday, April 15, 3:15 p.m. EST

"Adventures in Science" with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Mildred C. Rebstock, chemist at Parke, Davis and Company, will talk on "Woman-Made Mold Chemical To Fight Disease".

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INTO THE WILD BLUE—The wild goose, student of the philosophy of the "wandering foot," prepares to take off on his northern journey as summer approaches.

WILDLIFE

Trek of the Wild Goose

The wild geese are northbound after a southern winter. Their flocks reduced by disease and hunting season, they can find haven in sanctuaries across the country.

➤ TO the tune of a popular new song which has driven the nation's singers to torments of wanderlust, a great semiannual migration is now in full swing in the United States. Turn your radio to any dial. Sooner than later you'll hear:

"Tonight I heard the wild goose cry . . ."

You well might. From the Carolinas to California, wild geese are northbound. Along four major U. S. flyways they herald the coming of spring as they wing toward far northern marshes and the fierce battles of geese courtship.

You may have to look high and hard to see them. After months of hunting seasons and normal disease, reduced flocks of the "honkers" are lining out for breeding grounds and new families.

Richard Griffith, director of waterfowl research in national wildlife refuges, is more concerned about the actual wild goose situation than about the free publicity given his charges by the ballad, "Cry of the Wild Goose."

"We have enough trouble stretching our appropriation to maintain enough refuges," he says. "Now I have to hear that song hummed in the corridors outside my office."

If all the would-be wanderers really were to "go where the wild goose goes," wildfowl experts say they would wind up in pretty desolate country. They would spend the summer on lonely tundras inside the Arctic Circle, on the shores of Hudson Bay, in marshes from the coast of Labrador to the Aleutian Islands.

That is where the wild geese are going. Up the four well-charted flyways—the Atlantic seaboard, the Mississippi valley, the wheat-belt Central flyway, the Pacific coast—geese by the tens of thousands are heading home.

A hundred years ago, before high-powered shells, rapid-fire shotguns and the traps of market hunters, before prairie sloughs and marshlands were drained to make room for more wheat and corn and Louisiana sugarcane, wild geese flew up and down the expanse of the United States by the millions.

They were almost killed off completely. Then alarmed hunters joined conservationists in demanding controls.

Now, to protect them, the Wildlife Service maintains 201 wildfowl refuges across the country. Last year's appropriation to maintain these sanctuaries was $1,500,000. They cover 3,250,000 acres.

Yet in some years, the waterfowl people report, 40% to 50% of America's wild geese are killed in their annual visit to the United States. Hunters account for about 10% of the flocks. Disease and waterfowl parasites boost the casualty list.

So if you hear a trumpeting "ka-RONK", look up quickly. The wild geese are fleeing the land of high-powered shells, flying north again to their far-off tundras.

Chances are, you'll see the great "V" formation of the Canadas. The largest and most widely distributed of the migratory geese, the long-necked Canada goose follows all four flyways. He will be heading for the great marshes of the Canadian provinces, from the lower Yukon valley of Alaska east to the coast of Labrador, and north to Arctic coastlines.

The handsome Canada has a black head and neck, broken by patches of white on each cheek; gray-brown upper body and wings; and a pale-gray chest and breast fading to pure white on the belly and tail.

Or you might see the legendary snow goose, flying very high in the sky toward the Arctic Circle, his white body offset by jet black wingtips.

Others in the list of 10 to 12 families of geese on this continent winter in the same localities every year, return north by the same flyways.

From the Louisiana marshes will come the blue goose, known also as the bald-headed brant, the blue wavey—or just plain "skillet head." He'll be heading up the Mississippi to areas inside the Arctic Circle in Canada's Northwest Territory or on Baffin Island.

Along the Pacific coast will come the Western Canadas and the lesser Canadas, the cackling geese ("greasers" or "yelpers"), Ross's goose ("wart-nosed wavey") tule goose, white-fronted goose and the black brant. The lesser snow goose will be there, his brother the greater snow goose across the continent on the Atlantic. So also the American brant, smallest of the geese with the exception of Ross's goose, not much bigger than a mallard drake.

And what do the wild geese know?, the song would ask.

They know how to keep away from hunters, two-legged or four-legged, for they are the wariest of American wildfowl. While feeding in flocks, sentinels are posted, their long necks rigidly upright while others pry into mud banks and bog bottoms for the last roots of grass and plants.

Yet their gregariousness sometimes allows them to be tricked within gunshot range by decoys. Boys in Massachusetts once employed "flyers," young birds thrown into the air or catapulted off cliffs at the approach of a flock. Their parents would be staked out on the beach near the shooting blind.

The wild geese, seeing the flyers circling, would follow them down to their doom.

Now live decoys such as these have been outlawed.

The wisest gander of the flock normally leads the great "V" formation. Wild geese can fly more than 60 miles an hour, some of them. But their size often makes them appear deceptively slow.

Ahead of the young ganders in the spring are the rites and fights of wooing a mate for the summer's mating. The battles between ganders sometimes last nearly an hour. Their powerful wings and blunt bills can give a lot of punishment.

Having driven off competitors, the successful swain woos his mate with loud hisses and rustling of feathers. He reaches his long neck caressingly around her, and her neck moves in response.

By mid-summer, with goslings in the nest, the parents begin to moult. Their feathers loosen and drop out. Unable to fly, they remain hidden in reeds and marshes, relying on swimming to escape danger.

By the end of August, in the farthest north, the geese have new plumage. They're ready for their great flight back south, telling farmers and hunters that winter is almost upon them.

But now the wild geese are headed north. In warming forests, Indians will call, "The waveys are back." And the ice will be breaking up in the bays and rivers. Another summer will be just around the corner.

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ENGINEERING-AGRICULTURE

Alcohol-Powered Cars May Solve Crop Surpluses

➤ ONE of chemistry's great dreams—the day all automobiles will be powered partly by alcohol—has been described as a solution for the country's periodic headache, crop surpluses.

Dr. Philip J. Schaible, director of a Cincinnati, Ohio research council which seeks new uses for wastes from the nation's distilleries, told the National Farm Chemurgic Council the dream will some day become a reality.

Scientists have long known: 1. alcohol can be made not only from crops such as grain and potatoes but from crop wastes and wood wastes; and 2. alcohol-water-injection in gasoline engines can boost their power and save gasoline.

Edward W. Russell, former managing editor of the London Morning Post, told the convention that countries such as England that must import oil "sooner or later will find alcohol-water-injection essential."

Dr. Schaible predicted that grain alcohol for use as motor fuel would end grain surpluses in the U. S.

"But practical application to our economy is still something for the future," he said.

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CONSERVATION

End to Dust Bowl Days

➤ "DUST storm conditions in the Midwest are not nearly so bad as those which existed in the 1930's," Dr. Mark L. Nichols, chief of research for the Department of Agriculture's Soil Conservation Division, stated.

"A prolonged dry spell might make conditions much worse, but even so, we have the machinery and the techniques with which to fight back against dust storms," he pointed out.

Dr. Nichols said that soil conservation officials had expected a much greater loss of top soil in dust storms but timely rains last fall had held the loss down.

Soil conservation experts lost ground in their battle against erosion during the war. The farmers' patriotic duty to feed the world, plus the excellent price for wheat then, combined to lead many farmers to abandon the stabilized rotation which is the main weapon against erosion and dust storms.

"Now," according to Dr. Nichols, "we have gained back the ground lost during the war and are even a little ahead of where we were before the war."

He pointed to 2,300 soil conservation districts in the country, set up under state law by the farmers themselves. Each district has a board of supervisors which advises farmers how to rotate crops, how and where to plant grass which holds topsoil on the surface and how and where to plant windbreaks.

"Much remains to be done, however," he went on. "But, if we continue our present rate of progress, then I think that the country has dust storms whipped."

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On This Week's Cover

➤ THAT a young man has no priority on the gentle thoughts of love in the springtime is proved by two mongoose lemurs, shown on the cover, inhabitants of the National Zoo. The lemur which belongs to a primitive group of the primates is closely related to the monkeys. It has a pointed snout, usually long and sharp, but sometimes short and blunt. Each one has nostrils like those of a cat or dog and big, round eyes. There is always a gap between the upper middle incisor teeth and the lower front teeth are small and lean forward, so that they look like a comb, the conventional explanation of the arrangement being that the lemur uses these teeth to comb his hair. The mongoose lemur eats fruits and vegetables, but is also fond of birds' brains which are sucked into the mouth after the skull of the bird has been cracked with the teeth. These mammals are to be found largely in Madagascar although some of their smaller relatives are to be found in Africa.

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PRE-ROMAN FIGURINE—A product of the recent excavations in South Austria, the pre-Roman clay figurine is tentatively associated with the worship of the local Celtic god, Mars Latobius. Discovery has been made that a site on the Magdalensburg, a mountain near Klagenfurt, the capital of Carinthia, was not only a Roman settlement but also the center of the pre-Roman population, the lost capital of the Kingdom of Noricum.

GENERAL SCIENCE

From Now On: Food

Science can find the ways for feeding the two billion or more people on the earth and for solving water shortages by utilizing rainfall.

By WATSON DAVIS

Second in a series of glances forward in science.

➤ OUR world has chronic hunger. There is not enough food for all of the couple of billion men, women and children on the face of the earth.

The world has always been hungry. It probably will always be hungry. That does not mean that there is not now opulent living, overstuffed fatness, personal and otherwise, in almost every country. There is luxurious waste where death by starvation in the streets is a commonplace.

Food surpluses worry some parts of the world, not alone in the United States. Some day there may again be burning of coffee in Brazil. Or burning of corn in Kansas. We have powdered eggs stored in caves, like atom bombs.

Three-quarters of the world's population live as poorly as their parents and grandparents lived, almost unaffected by the great technical developments both in manufacturing and farming.

In the more advanced countries, where a fortunate fourth of the world's population lives, the average individual can buy far more than his father or mother could a half-century ago. The output of sugar, fats, fish, livestock products, fruits and vegetables has expanded enormously. This is true despite two devastating world wars and an economic depression.

We know we have the "know-how" of sufficiency for all. Poverty and malnutrition are technically the disgrace of nations. The wooden plough, the sickle, the poor seed from last year's field, and the outworn soil have no real excuse in 1950. Making them obsolete should be the world's point one.

Breaking down barriers of commerce, money exchange, and trade are needed, but the interchange of knowledge and the smashing of the barricades of folkways, mores and ignorance are even more important to cure world hunger and other social and economic ills.

Export of our "know-how" and "how-do" (experts, plans, machinery, seed, chemicals, as prototypes) will fill more empty stomachs of the future than scores of tons of surplus wheat.

Tomorrow morning at the world's breakfast tables some 55,000 more mouths must be fed—that is the rush of birth surpassing death. Obviously hunger can be fought, too, by limiting production of people as well as increasing production of food—a job that rising culture seems to do, but probably not well enough.

The market-basket task is one to which the UN Food and Agricultural Organization is dedicated. Their far-reaching plans need doing. We need a constant scientific searching for new ways to satisfy the cries of hungry people.

We need to:

A. Fertilize the backward areas with the scientific and technical knowledge we have.

B. Cultivate the sea, for its fishes too little appreciated and for its great plant growths now unharvested and scorned.

C. Fit the quality of our food to our needs, for nutritionists can combat "hidden hunger" with menus that promise a longer and happier "prime of life" for millions of seemingly well-fed Americans.

D. Explore more intensively food production from wood, one-celled algae, coal, petroleum and other unconventional raw materials.

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ENGINEERING

Fluorescent Lamps Tested Inside Huge Plastic Sphere

➤ EIGHT-FOOT fluorescent lamps are tested at the Westinghouse lamp division inside a huge plastic sphere, it was announced in Bloomfield, N. J. This so-called photometer is to measure light output.

The plastic photometer is 35,000 times the size of a baseball. It is in two halves and can be opened and closed like a giant clamshell. It has an outer coating of aluminum, and an inner coating of heavy white chalk paint. The paint gives proper light reflection and diffusion.

Lamps to be tested are placed inside by a mechanical loading arrangement. When positioned and lighted, a lamp gives light that bounces off the sides of the sphere in all directions, striking a light-sensitive photocell. Electrical output of the cell records on an outside instrument, from which the operator can read the light output.

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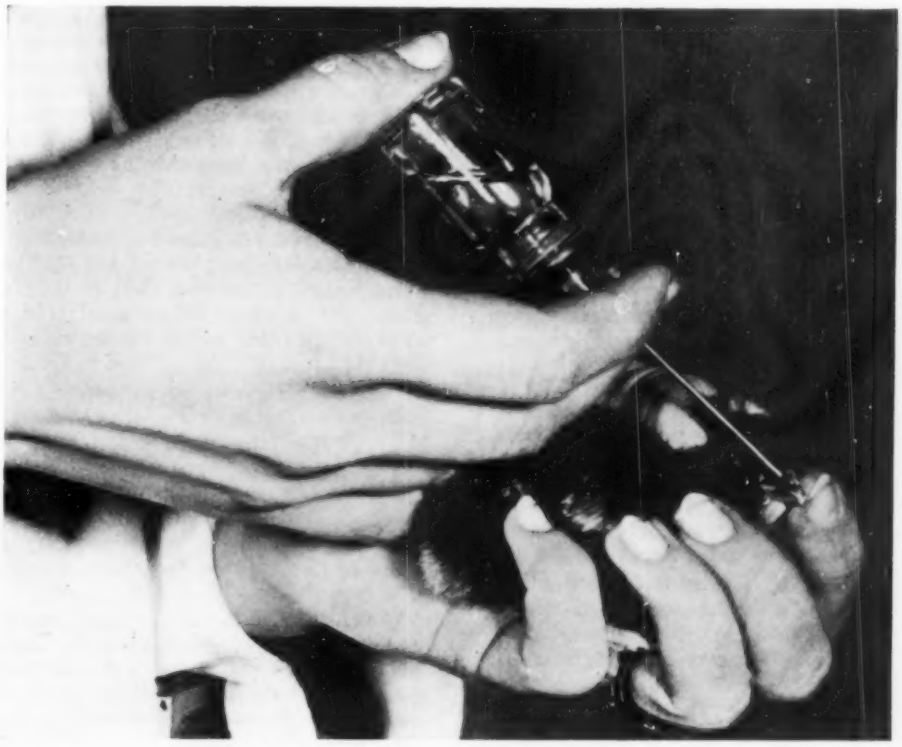

NEWCASTLE DISEASE VACCINE—Now, even-day-old chicks can be safely protected from the dread Newcastle disease. The intranasal vaccine, developed by Lederle Laboratories, is administered by placing a single drop of vaccine in one nostril of a chick, using a special applicator. Although this live-virus vaccine protects chicks until a month before they are old enough for egg production, they should be revaccinated with wing-web vaccine if they are to be used for laying purposes.

VETERINARY MEDICINE

Rinderpest Ravage Hidden by Snow

➤ SNOW, 15 to 20 feet deep, hides from the outside world the extent of Afghanistan's latest outbreak of rinderpest, considered the most costly animal disease in the world.

Answering a call for help from Afghanistan authorities two months ago, Dr. Keith V. Kesteven, head of FAO's Animal Industry Branch, went to Kabul equipped to show Afghanistan's two veterinarians how to prepare vaccine against the deadly cattle disease.

Because weather conditions interfered with the fighting of the outbreak, the world headquarters of FAO in Washington have not yet learned how successful the fight with vaccine has been.

During the war, it is now known, biological warfare against the world's meat supply was possible through germ warfare using the rinderpest virus. The present vaccine was developed on Grosse Isle as a result of counter-measures against the use of this deadly virus.

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AGRICULTURE

Better Hybrid Corn Without Detasseling

➤ IN a program aimed at eliminating the need for detasseling hybrid seed corn, University of Wisconsin scientists are starting work on the introduction of a corn plant with sterile pollen, one which cannot reproduce itself.

Scientists say that if the work is successful, it will change the still new but large hybrid seed corn industry by making possible more vigorous corn. It is pointed out that one objection to the costly and laborious detasseling process is that it often results in the stalk being damaged, making the plant easy prey to disease or insects.

With sterile corn, it would be possible to plant from two to six rows of this kind to one or two of normal corn and avoid detasseling. Using the kind with sterile pollen as one of the parents, the process could be used to grow any hybrid.

At present, it is necessary to detassel one of the types to prevent the plants from pollinating themselves. In other words, if type A is to pollinate type B, the tassels from B must be removed so that the B plants cannot pollinate themselves. Self-pollination of the A plants is unavoidable, but the seeds of these are not used. The result of the process is a pure hybrid seed; a cross of A upon B.

The search for ways to develop sterile corn began with a discovery in Peru by R. A. Emerson, of Cornell University, and Dr. F. D. Richey, formerly of the U. S. Department of Agriculture. While investigating new South American plants, these scientists found a few corn stalks that produced only sterile pollen, and samples were brought back to this country.

Experiments showed that these plants had inherited the sterile characteristics, indicating a possibility for such plants for hybrid corn development.

In the work at the University of Wisconsin, W. H. Gabelman will work with Prof. N. P. Neal, who is in charge of the corn breeding and development program at the university. The work will be done at the university farm near Madison.

Mr. Gableman, a former associate of Dr. D. F. Jones, plant breeder at the Connecticut Agricultural Experiment Station, will also work on hybrid onions suitable for truck farms, using the same principle used to produce hybrid corn.

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PSYCHOLOGY

Hypnotic Suggestion Persists for Three Months

➤ IF someone tells you while you are hypnotized that a chapter in a book will appear to consist of blank pages any time you look at it, you will think and act in accordance with this suggestion even as long as two months later.

At least this was the case with the University of Oklahoma student who was told while under hypnosis that a certain group of pages in a borrowed book would appear blank to him any time he looked at them. No mention of this was made to him until about two months later when he was asked to return the book. He then volunteered the information that the book was defective, adding that some pages were blank.

On finding the book he pointed out the "blank" pages which were those previously chosen. He expressed astonishment at this point that the other person had not noticed this defect.

This was only one of the suggestions made to the same student which Dr. Andre M. Weitzenhoffer reports in the JOURNAL OF ABNORMAL PSYCHOLOGY (Jan.).

The student underwent extensive hypnotic training for about a month. Each experimental session was preceded by a period of 15 minutes of suggestion in order to deepen the trance.

The shortest period over which hypnotic suggestion appeared effective was five days, and the longest period was 134 days. The persistence of the suggestion for 134 days confirms the work of earlier investigators that post-hypnotic suggestions can remain effective for a period of at least three months when remaining hypnotization is present.

Dr. Weitzenhoffer believes that not only the depth of hypnosis but also the nature of the task are determining factors in the effectiveness of hypnotic suggestion.

Science News Letter, April 8, 1950

IN SCIENCE

MEDICINE

Ulcer Operation Eliminates Stomach Removal

➤ A NEW operation for ulcer patients which will in most cases eliminate the need for the radical procedure of removing most or all of the stomach has been perfected by Dr. A. Davis Beattie, surgeon of Leicester General Hospital in England.

The operation consists in snipping a small diamond-shaped piece from the pylorus, which is the opening from the stomach to the first part of the small intestines, called the duodenum. Details are reported in the LANCET (March 25).

This is done at the time of a nerve-cutting operation, vagotomy, for stomach and duodenal ulcers. Snipping the piece from the pylorus, Dr. Beattie finds, completely eliminates the spasm of the pylorus and acute stomach distention which have been distressing after-effects of the nerve-cutting operation. No special care after the operation is needed, nor is stomach suction needed as with vagotomy alone.

"The door is now open," Dr. Beattie declares, "for the recognition of vagotomy as a standard surgical procedure for duodenal ulcer."

Science News Letter, April 8, 1950

VETERINARY MEDICINE

Pussy Should Have Her Teeth Cleaned Too

➤ CAT owners should take Pussy to have her teeth cleaned regularly two or three times a year, it appears from a report in the JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION, Chicago, Ill.

"Cats which live easy lives are likely to be victims of tartar incrustation with attendant pyorrhea and eventual loss of teeth," states the report by Dr. W. A. Young, Chicago veterinarian.

Cleaning and a varied diet, especially one containing fresh or uncooked foods, will clear up the gum disease in many cases. But when this does not help, Pussy must have her teeth pulled.

"Marked improvement in general health with probable extension of life has been noted in many cats having all their teeth extracted," Dr. Young reports.

The cats are better off without their teeth than "to have their bodies constantly absorbing the toxic products of chronic infection, as is the case in extensive pyorrhea."

Chronic stomach inflammation, kidney disease and other debilitating conditions have in many cases been traced to infections in the cat's mouth.

Science News Letter, April 8, 1950

NCE FIELDS

WILDLIFE

Lead Shot Fatally Poisons Wild Ducks

➤ A DUCK'S proper diet should not include lead shot. But wild ducks, mistaking shot for seeds on marsh bottoms near shooting blinds, eat them anyway, sometimes sicken and die.

Two Illinois naturalists have found, however, that if a lead-eating duck munches also on leafy plants, lead poisoning somehow is averted.

James S. Jordan and Frank C. Bellrose of the Illinois Natural History Survey told the 15th annual North American Wildlife Conference in San Francisco that ducks sickened by lead poisoning often recovered after aquatic plants were added to their otherwise unbalanced diet of corn and seeds.

A new material for shotgun pellets, which will kill wildfowl from the gunbarrel but not poison them later, is the goal of a two-year joint study by the Natural History Survey, the University of Illinois and the Western Cartridge Co., a leading manufacturer of shotgun shells. No practical alloy without the toxic effect of lead has yet been found.

More than 60 papers on soils, water, forests and wildlife were presented at the international conference.

Now going on are a series of nine public wildlife meetings in key cities across the country. Top officials of the U. S. Fish and Wildlife Service discuss the current status of migratory waterfowl. Three have already been held, in Omaha, Memphis and Atlanta. The next is scheduled for April 12 in St. Louis.

Science News Letter, April 8, 1950

ASTRONOMY

Easter Date Fixed for Centuries to Come

➤ EASTER, this year, coming on April 9, falls almost exactly in the middle of the 35-day period during which the resurrection of Christ may be celebrated. It can come as early as March 22, or as late as April 25, though it rarely occurs on those dates.

However, this is the last time Easter will fall on April 9 during this century. It also happened during 1882, 1939 and 1944.

A familiar rule for figuring the date on which Easter falls is "the first Sunday after the first full moon after the 21st of March."

The rarest date for Easter is March 22, the earliest date on which it can occur. It comes on this date, in the long run, about once every 207 years. Last time it happened was in 1818 and it will not happen again until 2285. Easter was last celebrated on the latest date it may occur—April 25—in 1943.

Although, astronomically, the date of Easter is determined by the sun and the moon, in practice certain arbitrary but fairly exact mathematical rules have been set up. Using these rules it is possible to calculate the date for many centuries in advance.

Science News Letter, April 8, 1950

ENGINEERING

Device Measures Pull of Air Masses on Earth

➤ A DEVICE to measure the pull of slow-moving air masses on the earth's surface is being developed by University of California engineers, Los Angeles, Calif.

Called a "shear meter" by its designers, Dr. H. F. Poppendiek and J. E. Vehrencamp of the U. C. L. A. engineering research staff, the gadget will actually be a small-scale model of the terrain to be studied, floating in a tank of water.

Drag caused by air moving over the model will be measured by sensitive coil springs.

The engineers hope to learn how the hills and dales of rough terrain affect the spread of atmospheric irritants such as "smog." Other uses might include studies on the diffusion of heat-carrying smoke sometimes needed to help citrus groves through a cold snap. Weathermen may use it to study turbulence in the atmosphere.

Development of the instrument was sponsored by the Office of Naval Research.

Science News Letter, April 8, 1950

GEOLOGY-BOTANY

Growing Plants Clue to New Metal Deposits

➤ THE prospector for new metal deposits of the future will go about collecting living plants, analyzing their leaves and stems, in order to detect the hidden deposits that lie underground, the American Chemical Society was told in Houston, Tex.

Dr. Paul Weaver, chief geophysicist of the Gulf Oil Corporation, predicted that important new ore deposits would be discovered through this sort of geo-botanical-chemical prospecting.

"Certain plants are selective in concentrating certain metals," he explained. Selenium, for example, if located below the surface but fairly near it would be dissolved in the ground water. Any protein-building plant will take selenium from the water and use to replace the usual sulfur. Tumbleweed is such an accumulator of selenium and could be used to detect underground deposits.

Rocks containing metals in small concentration could be utilized as sources of metals when chemists develop new techniques of processing, Dr. Weaver also predicted.

Science News Letter, April 8, 1950

PHYSICS

Most Powerful Electron Accelerator Planned

➤ ATOMIC scientists at the California Institute of Technology will get a new tool for nuclear physics study under plans announced by the Atomic Energy Commission.

It will be the world's strongest electron accelerator, capable of delivering billion-volt electron streams and X-rays, AEC said.

The machine will be rebuilt from a quarter-scale pilot model which scientists at Berkeley's Radiation Laboratory of the University of California used to check plans for a new seven-billion-volt "bevatron" now under construction.

The bevatron when completed will speed proton bullets with 6,000,000,000 electron volts. Protons, positively charged, are the building blocks out of which all atomic nuclei are constructed. The quarter-scale model is being rebuilt to speed electrons to velocities only one-millionth of one per cent less than the speed of light. The speed of light is the theoretical but unattainable top velocity for any material particle.

Science News Letter, April 8, 1950

AGRICULTURE

Pneumatic Gun Shoots Hay into Loft

➤ THE modern way to get bales of hay up into the loft of a storage barn is to "shoot" them up with a pneumatic gun. A special gun, developed for the purpose, is described in AGRICULTURAL ENGINEERING (March), published in Saint Joseph, Mich.

The gun was developed by a New York State farmer, F. W. Moffet, Jr., and used by him in 1948 to store 15,000 bales of hay. During 1949 it was used at the Iowa State College, where it was subjected to engineering scrutiny. The description is by Prof. J. B. Liljedahl, formerly of Iowa State but now with the University of Tennessee, and Prof. E. L. Barger of Iowa State.

The principal parts of the gun include a pneumatic cylinder into which a bale of hay can be dropped, piston and rod, and a pusher plate which heaves the bale. Surrounding the cylinder is an air tank which holds a measured amount of compressed air that serves as the "explosive" for the gun. The compressor is charged by a 5-horsepower engine.

At 200-pound pressure, the gun can heave a 58-pound bale to a height of 21 feet and a horizontal distance of 48 feet. The gun can be pointed to take proper aim. It shoots accurately enough to send the bales squarely through the hay doors.

Its working speed, when shooting into a door 21 feet above the ground, is a little less than three bales a minute. It is considerably faster than hand methods of handling, or the use of the common grapple-fork method.

Science News Letter, April 8, 1950

CONSERVATION

How to Cut Water Waste

Sea water distillation, re-use of water and a reduction in consumption are methods for combatting the water shortage and lessening water wastage.

By A. C. MONAHAN

➤ WHAT water shortage means is now partly known in New York City, but few realize that there are many sections of the United States where more water is used daily than the amount that nature is providing for future needs.

Population increase in rapidly growing cities is not the sole cause of the greatly increased use of water that may result in shortages. Individuals use more water than ever before.

Modern equipment ranging from dishwashing to street washing are water wasters. Manufacturing plants in industrial process are using ever increasing quantities.

Scientists and engineers today are much concerned about the future water supply. Much water now passing to the ocean by the various river routes can be held back and stored for use in reservoirs, and in conservation practices and forestation. But that will not be enough. Much of the water now used can be easily purified and used over and over again.

Ocean to Supply Water

The one abundant supply of water is the briny ocean. Coastal cities may some day find it to be a main source of domestic water. It can be used as it is for street washing and fire extinguishing. For domestic and industrial uses it must be cleared of its salts and other impurities.

Best methods are now an engrossing problem. Even Congress is interested. A proposal is before it to provide funds for scientific studies in the methods of getting fresh water from sea water.

Sea water can be purified by distillation, of course. Ordinary distillation processes are too costly, however, to be applied to the giant job of supplying a city with domestic water. But distillation is now widely used on shipboard. Many ocean vessels get their potable water from the sea on which they float.

Compression Distillation

A much cheaper method than ordinary distillation is essential. What is known as compression distillation may be the answer. This process, developed by Arthur D. Little, Inc., Cambridge, Mass., provided water for a million soldiers during the war on Pacific island and mainland beachheads.

In compression distillation, preliminary heat is used to get a small amount of steam. This steam is mechanically compressed. The process raises its temperature as steam, and also raises the temperature at which it condenses to water. The temperature raise means that heat is given off. This heat, in turn, evaporates more water in the still. As long as the pressure is kept up, the process is continuous.

At the Army Base, Boston, a special distillation system is making 1,250 gallons of fresh water an hour from harbor salt water, utilizing what is called an improved heat pump principle. For every pound of fuel consumed, 200 pounds of water are obtained.

It is said to be some four times as efficient as processes used during the war. This particular experimental plant, after tests are completed, is to be moved to the Air Force field in Bermuda, where fresh water is a problem.

Freshening salt water may be of interest to other than coastal cities. Take southern California, for instance. If seacoast towns can get fresh water from the ocean for their greatly increased industrial activities and increased population, more of the water now obtained from the Colorado river and other sources will be available for irrigation. Southern California agriculture, it must be remembered, is dependent upon irrigation.

Conserve Available Supplies

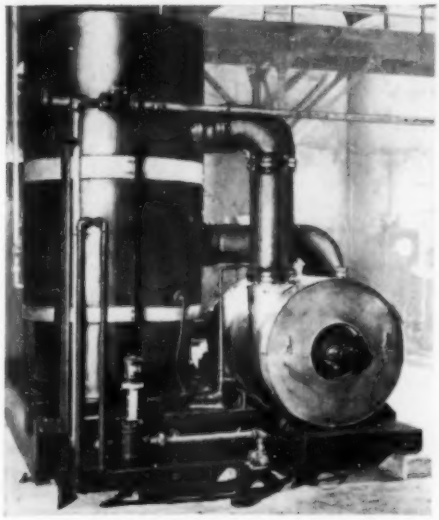
The first step in preventing water shortages is the conservation of available supplies. This does not necessarily mean the use of less water. It means the purification of used water so that it can be used over and over again. The purification of water after use in one city, even if not used again at that location, means less pollution of streams and more possible uses of the water in cities farther downstream.

Cleaning of Waste Water

At least one simple method has been developed for removing dirt and oil from water used in laundries and industry, making it completely suitable for re-use. It utilizes what is known as the Gale Separator, designed and built by the Gale Oil Separator Company, Inc., New York City. The system uses gravity, not the complicated mechanism and the heat needed in distillation processes.

As described by W. A. Gehle, president of the Gale Company, this cleaning system utilizes a simple engineering principle of hydraulics. He describes the device as a specially rounded tank with directional baffles to give direction to the water flowing through it. The water to be purified is dispersed outwardly by the baffles to the sides of the tank. This causes de-sludging

WATER CLEANED HERE—The "water laundry" cleans water utilized in industry so that it can be used again. It is known as a Gale Separator and, by baffles, separates sludge and grease from the dirty water



OUT WITH THE BRINE—Heat distills sea water making it pure enough to drink. The compression distillator, made by the Arthur D. Little Company, Cambridge, Mass., allows the reuse of the original heat, thus cutting down fuel costs.

or separating impulses to be created immediately.

The waste water, after entering the tank, is deflected downward to the sloping bottom by an inlet baffle. Stretching crosswise in the bottom of the tank are a series of small low "dams." Engineers call them riffles. Solid matter in the water settles behind these riffles. Oil and grease float to the top of the water, and from there are drained off.

Score of Separators in Use

More than a score of Gale Separators are now in use. One installation is in a railway terminal yard where Diesel locomotives of several railroad companies are serviced. The water used in washing the Diesels accumulates much oil, grease and dirt. The separator not only salvages the vast quantities of water necessary in the washing process but also salvages grease and oil for re-use, and keeps these undesirable contaminants out of the city sewage.

Used in Laundries

The separator is also in use in commercil laundries, a type of activity that ordinarily wastes great amounts of water. One installation is for a laundry on shipboard. A different type of application is in a factory of a great copper and brass company. There it is used to recover for use over and over again the water which cools the rolls that turn out copper sheets. This water in the cooling process accumulates oil, grease and dirt. After passing through the separator it is as good as fresh water straight from water mains.

Science News Letter, April 8, 1950

ASTRONOMY

Asteroid As Yardstick

➤ THE new heavenly asteroid just discovered to have been within 5,400,000 miles of the earth in March promises to provide a new and more accurate yardstick for distances in the solar system.

The chances are that it may replace the famous asteroid Eros as the body which will be used to scale the distances of the sun and the planets. The new asteroid, discovered at the University of California and called 1950DA, approaches to almost one-third of the distance of Eros' closest approach.

For the next six months the new asteroid and the earth will run along together in the heavens like one airplane behind another, giving astronomers ample opportunity to observe it and determine its orbit with great precision.

Dr. Leland E. Cunningham of the University of California computed the orbit of the extremely faint object discovered by Dr. C. A. Wirtanen last month. It is believed to be about a half-mile in actual diameter. It swings about the sun in an elongated orbit approximately every two years, staying in sight long enough to have its path accurately determined. By triangulation astronomers can determine the distances of other parts of the solar system with greater accuracy once the new asteroid is precisely located, it was explained at Harvard College Observatory in Cambridge, Mass.

Four or five other asteroids of this kind have been found in the past half century. In 1912 Albert came close, but has never been seen since. In 1932 Apollo and Amor both came close, but Apollo's orbit is poorly determined and only Amor has a reliable orbit. Amor was seen again in 1940, and at its nearest can be about 10,000,000 miles from the earth.

For comparison, the nearest approach of well-known asteroid Eros is about 14,000,000 miles, planet Venus 26,000,000, and Mars 35,000,000. Other asteroids have come closer, such as Hermes, which in October, 1937, shot clear across the sky in nine days. At that time, Hermes was scarcely three times the moon's distance away, but so few observations could be gotten of Hermes that we know little about its future course.

Science News Letter, April 8, 1950

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MEDICINE

Wall-Eyed Conditions from Living at High Altitude

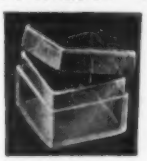
➤ A PERSON living at high altitudes is likely to become wall-eyed. Or he may suffer the opposite condition of crossed eyes.

More than half, 60%, of Peruvians who had lived for more than six months at altitudes of 10,000 feet and higher had the wall-eyed condition, Dr. Jorge Valdeavellano of Lima, Peru, found. Besides this 60% who had difficulty turning their eyes inward enough to converge on a near object, another 12% had crossed eyes which turned inward too much.

An inadequate supply of oxygen at the higher altitude is probably the cause, Dr. Valdeavellano said in his report to the Pan-American Conference on Prevention of Blindness, Miami Beach, Fla.

Science News Letter, April 8, 1950

TRANSPARENT BOXES



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BIOCHEMISTRY

Ethyl Alcohol Antidote For Methanol Poisoning

➤ ETHYL alcohol acts as a very effective antidote to methanol, or wood alcohol, Dr. Oluf Roe of the Rikshospital, Oslo, Norway, declares in a report to the QUARTERLY JOURNAL OF STUDIES OF ALCOHOL (March).

The ethyl alcohol should be given as a supplementary treatment after the acidosis in wood alcohol poisoning has been treated with bicarbonate, he emphasizes. Used in this way, it will prevent the recurrence of the acidosis.

It is particularly useful, Dr. Roe states, in cases when the wood alcohol poisoning victims must be transported some distance before the bicarbonate treatment can be given. In such cases, he declares, the eyesight or lives of patients could be saved by the ethyl alcohol treatment.

Science News Letter, April 8, 1950

Words in Science— HYDROLOGY-HYDROGRAPHY

➤ HYDROLOGY is the science or study of water. Its basis is the hydrologic cycle, the perpetual circuit which water makes from the oceans into the atmosphere through evaporation, from the air onto the land as precipitation, and from the land back to the ocean by underground structures, streams, lakes and rivers.

Hydrography is the art of describing the seas, lakes, rivers and other waters by accurate determination of the contours of the bottom of a body of water, its depth, the positions of channels and shoals. It is a branch of surveying which results in the charts navigators use.

The U. S. Geological Survey uses the two terms in a special sense: hydrology with reference to underground waters, hydrography with reference to surface waters.

Science News Letter, April 8, 1950

AGRICULTURE

Crush Hay in Field for Faster Drying and Storage

➤ WHEN haying time rolls around, farmers of the future may give their crop the big squeeze. Crushed hay, drying faster, can be gotten into the barn the same day it is cut, two agricultural engineers of Canada's Experimental Farms Service report.

Tests were run with a novel farm implement which picks up new-mown hay, sends it between two power-driven steel rollers, and strews it back on the field.

The crushed hay, cut at 8:30 in the morning, was ready for storage by evening, J. W. White and W. Karbfleisch write in the journal, SCIENTIFIC AGRICULTURE. It took at least two days for uncrushed hay from the same fields to dry sufficiently to be stored.

Means of suitably drying forage crops is a major problem in farm operation when farmers must keep an eye cocked for thunderstorms. Too much rain can ruin hay after it is cut. But it has to be left in the fields until it dries.

Crushed hay will be just as good for the cows, the engineers say. In 1948, experiments at Pennsylvania State College showed no significant change in the feeding value of hay that had been crushed.

Science News Letter, April 8, 1950

Gray's Manual of Botany

EIGHTH EDITION

Revised by
MERRITT LYNDON FERNALD
Fisher Professor of Natural History (Botany) Emeritus, Harvard University

- Approximately 8000 species and varieties of vascular plants are included.
- There is a "Synopsis of the Orders and Families of Vascular Plants" which shows the fundamental principles upon which the classification of the higher plants is based.
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What Well-Known People Say

Dale Carnegie—"I wish I had had the privilege of reading your book when I started my career. It should be used as a text book in every college in the land."

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New-type glass for RCA television picture tubes filters unwanted light, to give sharper, clearer images.

Wayward light is disciplined—for better television!

Now television pictures gain still greater contrast and definition—through research originally initiated by scientists at RCA Laboratories.

Their discovery: That wandering light waves inside a picture tube—and even more important, *inside the glass itself*—may cause halation and blur an image's edges. But, by introducing light-absorbing materials into the glass, the wayward flashes are disciplined, and absorbed, so that only the light waves which actually make pictures can reach your eyes!

Glass companies, following this research, developed a new type of faceplate glass for RCA . . . Filterglass. Minute amounts of chemicals are added while the glass is being made, and give it, when the picture tube is inactive, a neutral gray tone. In action, images are sharper, clearer—with more brilliant contrast between light and dark areas. Reflected room light is also reduced.

* * *

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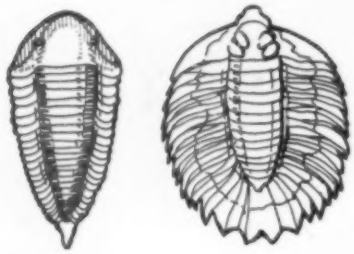
ZOOLOGY

NATURE RAMBLINGS

Trilobites



ALTHOUGH the age of the earth is counted in billions of years, let us imagine it to be 100 years old. On this scale man has existed on the earth less than one year. Mammals of any kind—the group of warm-blooded animals of which man is a relatively recent development—have existed only during the last ten years.

The first 73 years of the earth's history was a steamy epoch during which, at some point, a variety of one-celled creatures like sponges, algae, and radiolaria developed, and had the whole globe to themselves. Around the end of this span more complicated forms of life began to evolve. One of the most successful of these was the trilobites.

On our 100-year time scale, the trilobites were the dominant form of life for almost eight years. To revert to conventional time language, the reign of the trilobites took place about 500,000,000 years ago and lasted for roughly 200,000,000 years.

Trilobites continued to exist long after their heyday was over, and it was not until just before the earliest mammals emerged, about 200,000,000 years ago, that they disappeared completely. It is from fossil remains in rocks and sediment deposits that paleontologists are able to reconstruct the ancient history of the rise and fall of the trilobites.

Although of a hoary age, the trilobite remains are sufficiently numerous and well preserved to enable scientists to reconstruct the family tree with great accuracy. Trilobites form a separate class of the great arthropod phylum which includes the insects, the spiders, and the crustaceans (lobsters, crabs, shrimp, etc.).

They get their name from the two long furrows which run down the back, forming three lobes. The earliest of the three-lobed creatures, or trilobites, were very tiny, although in the course of their evolution they reached an average size of one to four inches in length. There were more than 1,000 different species of trilobite and the size range varied considerably, but the largest was only about 18 inches long.

During the period when trilobites were the lords of the earth, they made up at least 60% of the total animal population. They were marine animals which preyed on smaller creatures. Although they are now extinct, it is thought that today's shrimp, crabs, and lobsters are the direct evolutionary descendants of the ancient trilobites.

From an evolutionary point of view trilobites got in on the ground floor. They dominated every other form of life for 200,000,000 years. There was every reason to think that they had a permanent lease. But things turned out otherwise.

Today man eats broiled lobster, and studies fossils. He rarely stops to wonder: Who will be top dog 200,000,000 years from now?

Science News Letter, April 8, 1950

• Books of the Week •

TO SERVE YOU: To get books, send us a check or money order to cover retail price. Address Book Dept., SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C. Ask for free publications direct from issuing organizations.

THE AMERICAN JOURNAL OF HUMAN GENETICS—Vol. I, No. 1—C. W. Cotterman, Ed.—*The American Society of Human Genetics*, quarterly, 112 p., paper, Volume: $8.00, Single issue: $2.50 (Each volume will consist of four numbers). The introduction is written by H. J. Muller, President of the American Society of Human Genetics, who states that it is the hope of the society that this quarterly will serve as the center in North America for bringing together such genetical studies.

A.S.T.M. STANDARDS ON ADHESIVES—*American Society for Testing Materials*, approx. 58 p., illus., paper, $1.25.

CANNING TECHNOLOGY—A. J. Howard—*Sherwood Press*, 287 p., illus., $8.00. An account of various processes connected with food canning. Of British origin.

A CENTURY OF ASTRONOMY—Angus Armitage—*Macdonald*, 256 p., illus., $2.20. A guide for the layman to the prodigious expansion of astronomical knowledge which has taken place in the last 100 years.

CHILD OF DESTINY: The Life Story of the First Woman Doctor—Ishbel Ross—*Harper*, 309 p., $3.50. The life of Elizabeth Blackwell as told by the author.

COURSES ON LATIN AMERICA: In Institutions of Higher Education in the United States 1948-1949—Estellita Hart, Compiler—*Pan American Union*, 291 p., $1.50.

CREATIVE PERSONALITY: The Next Step in Evolution—Charles Francis Potter—*Funk & Wagnalls*, 215 p., $2.50. The author urges us to go forward and find our inspiration in evolutionary life itself rather than retreat from the momentous problems of today.

DIRECTORY OF INVENTOR AIDS: Supplemental to Professional Services of the Patent Bar 1950 Edition—*Directory of Inventor Aids*, 64 p., paper, $2.00. A compilation of information regarding the various non-legal services available to inventors.

THE FLORIDA INDIAN AND HIS NEIGHBORS: Papers Delivered at an Anthropological Conference Held at Rollins College, April 9 and 10, 1949—John W. Griffin, Ed.—*Rollins College*, 168 p., illus., paper, $1.00.

FOUR NEW SUBSPECIES OF THE GENUS CICINDELA (COLEOPTERA, CICINDELIDAE)—Patricia Vaurie—*American Museum of Natural History*, 6 p., paper, 25 cents.

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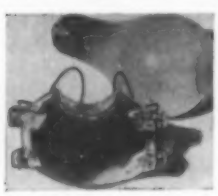

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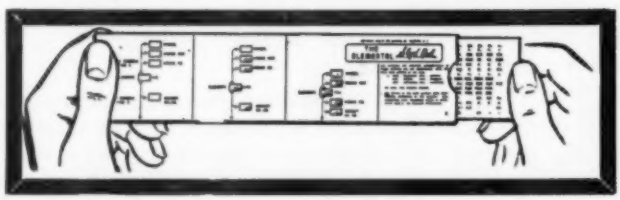

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of Agricultural Economics—*Gov't. Printing Office,* U. S. Dept. of Ag. Information Bull. No. 3, 35 p., illus., paper, 25 cents. This discussion relates primarily to the geographical aspects of farming.

GRAIN BIN REQUIREMENTS—Benton M. Stahl—*Gov't. Printing Office,* U. S. Dept. of Ag. Circ. No. 835, 23 p., illus., paper, ten cents.

GREAT EXPRESSIONS OF HUMAN RIGHTS—R. M. MacIver, Ed.—*Institute for Religious and Social Studies* (Distributor: *Harper*), 321 p., $2.50. A series of discussions by such prominent men as Sherman Kent, Elmer Rice, Norman Thomas on 14 statements such as the Magna Carta, the Bill of Rights, and the International Bill of Rights.

HISTOLOGY—Arthur Worth Ham—*Lippincott,* 756 p., illus., $10.00. An introductory text which takes into account not only the study of histology itself but also some of the problems which students have in mastering the principles of the subject. Helpful illustrations.

MECHANICAL COMPUTING MECHANISMS—Robert R. Reid and Du Ray E. Stromback—*Product Engineering,* approx. 20 p., illus., paper, free upon request to The Franklin Institute Laboratories, Admin. Div., 20th St. and Ben Franklin Parkway, Phila. 3, Pa. A series of four articles on a systematic approach to the designing of mechanical analog computers.

MEN AGAINST THE STARS: Adventures in Science Fiction Series—Martin Greenberg, Ed.—*Gnome Press,* 351 p., $2.95. A compilation of stories each developing a different phase of space travel. Isaac Asimov, Lewis Padgett, Hal Clement are among the many authors contributing these different phases. Willy Ley has written the introduction. Fiction, of course.

MINERALS YEARBOOK 1947—Allan F. Matthews, Ed.—*Gov't. Printing Office,* U. S. Dept. of Interior Publ., 1616 p., illus., $4.25. Basic data on the performance of the mineral industry during 1947.

MODERN CHEMISTRY—Charles E. Dull, William O. Brooks and H. Clark Metcalfe—*Holt,* Rev. ed., 564 p., illus., $3.16. An introductory high school text.

NEW DISCOVERIES IN MEDICINE: Their Effect on the Public Health—Paul R. Hawley—COLUMBIA UNIVERSITY PRESS, 134 p., illus., $2.50. A series of talks which the author delivered at the Bampton Lectures in America at Columbia University. Written in nontechnical language.

NEW GRASSES FROM MEXICO, CENTRAL AMERICA, AND SURINAM—Jason R. Swallen—*Gov't. Printing Office,* Bull. U. S. National Museum, approx. 30 p., paper, 15 cents. The author describes 48 new species and proposes two new names.

THE 1950 ANNUAL SUPPLEMENT: The World Book Encyclopedia—J. Morris Jones, Man. Ed.—*Field Enterprises, Inc.,* 224 p., illus., paper, $1.25. Reviews important events and developments of 1949. The section on inventions and discoveries is by Martha Morrow and A. C. Monahan, Science Service Staff Writers.

NOTES ON SOME INDO-AUSTRALIAN MONITORS (SAURIA, VARANIDAE)—Robert Mertens—*American Museum of Natural History,* 7 p., illus., paper, 25 cents.

OUT OF MY LATER YEARS—Albert Einstein—*Philosophical Library,* 282 p., $4.75. A new collection of essays by this distinguished physicist.

PATTERN FOR CONQUEST: An Interplanetary Adventure—George O. Smith—*Gnome Press,* 252 p., $2.50. The author has plotted his story around alien people on strange worlds, when space travel has become a common thing. Fiction.

A POLICY AND PROGRAM FOR SUCCESS: Bold New Program Series No. I—Dewey Anderson and Stephen Raushenbush—*Public Affairs Institute,* 76 p., illus., paper 40 cents. The first of a series of eight studies on programs, policies and methods for aiding the underdeveloped two-thirds of the world to a larger partnership for peace, freedom, and justice.

PRESERVATION OF AGRICULTURAL SPECIMENS IN PLASTICS—G. R. Fessenden—*Gov't. Printing Office,* U. S. Dept. of Ag. Misc. Publ. No. 679, 78 p., illus., paper, 25 cents. A description of two preservation methods.

REPORT ON INSPECTION AND ANALYSIS OF COMMERCIAL FERTILIZERS, 1949—H. J. Fisher, Chemist in Charge—*Connecticut Agricultural Experiment Station,* 51 p., illus., paper, free upon request to publisher, New Haven, Conn.

SCIENCE IS A SACRED COW—Anthony Standen—*Dutton.* 221 p., $2.75. Scientists will be the first to chuckle over this penetrating and biting discussion of facts and foibles.

SIXTH COLUMN: A Science Fiction Novel of a Strange Intrigue—Robert A. Heinlein—*Gnome Press,* 256 p., $2.50. The story of how six men save America which has been conquered by the Asiatics. Fiction.

STEAM BLAST VOLCANIC ERUPTIONS—Fourth Special Report of the Hawaiian Volcano Observatory of the U. S. Geological Survey and the Hawaiian Volcano Research Association—T. A. Jaggar—*Hawaiian Volcano Research Association,* 137 p., illus., paper, $1.00. A study of Mount Pelee in Martinique as a type of volcano.

STRUCTURE IN RELATION TO CELLULAR FUNCTION—Robert Chambers—*New York Academy of Sciences,* Approx. 194 p., illus., paper, $3.00. The series of papers was presented before the Conference on Structure in Relation to Cellular Function held by the Section on Biology of the New York Academy of Sciences, May 2 and 3, 1947.

Science News Letter, April 8, 1950

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⚙ *INTERLOCKING LEAD BRICKS, for protective installations in connection with high-density radioactive work, eliminate the low density "joint space" between ordinary rectangular brick. The new brick is so designed that a complete dense wall may be obtained, including at corners.*

Science News Letter, April 8, 1950

⚙ *THREE-IN-ONE SCREW DRIVER* has *bits for round-head, flat-head and Phillips-head screws, two of which are held inside the handle when one is in place for use. For changing, the projecting one is removed and inserted in the outer end of the handle, pushing another to the front.*

Science News Letter, April 8, 1950

⚙ *WATER PURIFIER, for the restaurant,*

laboratory or industrial plant where water of high quality is needed, will deliver up to five gallons an hour of water as chemically pure as obtained by triple distillation, it is claimed. This small-space device, as shown in the picture, uses a miniature ion-exchange tower.

Science News Letter, April 8, 1950

⚙ *ELECTRIC CORD PLUG, which eliminates the necessity of stripping insulation from the wire, makes the plug-replacement job easy. After slitting the cord between the two wires, the ends are then stuck, separated, into a hole in the plug and a hinged clamp pressed down to make an internal contact.*

Science News Letter, April 8, 1950

⚙ *SPECTACLE HOLDER, recently patented, is a device to hold eyeglasses in place. It is especially suited for workmen, or a child on the playground. An elastic cord, attached to the spectacles' legs behind the ears, passes loosely through a tiny ring held to the coat collar by a safety pin.*

Science News Letter, April 8, 1950

⚙ *ATTIC TELEVISION antenna eliminates the need for outside masts, towers and guy wires and is claimed to be as satisfactory as roof-mounted antenna in virtually all locations within 30 miles of the TV broadcasting station. It can stand on the attic floor or be suspended from rafters.*

Science News Letter, April 8, 1950

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The eyes of the great *blue whale* are about the size of grapefruit.

Some *sagebrush* of American semi-desert western areas provides beautiful wood for carving ornamental objects.

Turnips and rutabagas are two distinctly different *vegetables*, although the names are sometimes used interchangeably.

A new home or chapel *organ* can be used for practice without disturbing the neighbors; by special mechanism only the player, using earphones, can hear the music.

Greece has some 250,000 acres of waste-land that can be reclaimed by drainage and irrigation, it is estimated; salt and alkali flats already reclaimed are now producing rice.

A new red *petunia*, bred and raised in southern California, is described as a spectrum red with a glow of scarlet; it is called the "Fire Chief Petunia," and seed is now available from many seedmen.

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